

Final
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December 10, 1996**FINAL TECHNICAL REPORT
GRANT NAGW-4809****"STRENGTHENING THE LINKS TO SYSTEMIC REFORM"****GRANT BACKGROUND**

In 1995 the National Alliance of State Science and Mathematics Coalitions (NASSMC) met with the Education Division of the National Aeronautics and Space Administration (NASA) to discuss collaborating on activities to support state-level, standards-based education reform. As a result of those discussion NASSMC was invited to submit a proposal to NASA for specific work with NASA's Industry Education Initiative (NIEI.)

NIEI was established in 1991 to engage NASA and its private-sector contractors in a coordinated effort to support the National Education Goals. NIEI's first project was the publication of a report which inventoried the educational programs of its membership and assessed the extent to which these programs were consistent with and supportive of the Goals. The report noted that "the majority of NIEI activities involve traditional education-assistance programs, but the number of critical assessment and systemic reform initiatives is low. Thus, in aggregate, NIEI programs may not be fully aligned with the growing consensus for systemic change (as differentiated from simple reform) in the national education delivery system." The report recommended that NIEI expand "its liaison with business, schools, and universities, professional and civic groups, and other appropriate organizations to increase cooperative educational assistance efforts and total resources directed towards national education reform."

NASSMC has as one of its goals to strengthen corporate involvement in coalition activities by engaging business leaders in its national agenda and in the state-level planning and activities of its member coalitions. NASA invited NASSMC to propose a project to engage the NIEI members in the reform of mathematics, science, and technology education at levels that will significantly increase the impact of NIEI members' efforts on long-term, system-wide reform of education.

PROJECT GOAL

The objective of the project was to develop, deliver, evaluate, and report on a process to increase the involvement of members of the NIEI in activities and collaboratives that support the systemic reform of mathematics, science, and technology education. Actions to meet the goal included the development of a presentation on Mathematics, Science, and Technology Education (MSTE) appropriate for the corporate community, delivery of the presentation to NIEI members, and the performance of appropriate follow-up activities.

PROJECT ACTIVITIES

NIEI Annual Meeting

Funding for this project freed Dr. William Hammers, president of NASSMC and supervisor of Industrial Engineering at Cessna Aircraft Company, from his Cessna responsibilities to develop a business-oriented presentation on the reform of mathematics, science, and engineering education. To tailor his message to the NIEI community, Dr. Hammers met with NASA staff assigned to the NIEI project, as well as three corporate members of the NIEI: Jack Woods of IBM, Dennis Scheible of Allied Signal Aerospace Company, and Lucy Slater of the Boeing Company. Using the input from these meetings, Dr. Hammers developed and presented a workshop entitled “Building Effective Partnerships in Support of the Systemic Reform of Mathematics, Science and Technology Education” at the annual national meeting of NIEI in November 1995. Dr. Hammers outlined the history of standards-based reform; educational systemic change; major reform efforts underway at the national and state levels; opportunities for high-leverage corporate involvement in education reform; and available links to national, state, and local reform initiatives. The presentation evolved into an active discussion of the complexities of systemic reform of MSTE and the “new” role of business in education. Dr. Hammers challenged the NIEI community to consider higher-leveraged participation in education reform efforts.

State-Level Meetings

As part of the follow-up process, it was decided to concentrate efforts on engaging NIEI’s members in state-level reform activities in Maryland and Virginia, states chosen because of their high density of NIEI affiliates. In each state a half-day meeting of the state coalition, NIEI affiliates, and representatives from NASA’s Space Grant Consortium was convened to discuss: (1) the status of MSTE reform in the state, (2) the activities and programs presently sponsored by each organization, and (3) how the organizations might collaborate in the future to leverage their activities to support statewide systemic change of MSTE. Results of these two meetings are summarized by the states’ coalition directors and are included as an attachment to this report.

LESSONS LEARNED

1. The corporate community is interested in learning about the status of MSTE reform and is willing to commit to higher-level reform activities if given an equal voice in developing the vision and strategies that guide those activities.
2. There is a need for a “tailored” message for each constituency involved in MSTE reform such as the presentation developed by Dr. Hammers for the business community. And, the impact of such a message is enhanced when the message is delivered by a respected member of the constituency.
3. The business community is unaware of the potential it has for effecting long-term, systemic reform of MSTE. Sharing information on high-impact corporate activities is the most effective method of generating a company’s review of its educational initiatives and a rethinking of the use of its resources to support education.

4. Engaging the corporate community in a statewide meeting of MSTE reform leaders is the most successful means of educating this community about MSTE. This activity embeds the corporate community in the state's education reform community and more quickly engages them in meaningful discussions and participation in state systemic reform.

FUTURE

Reviews from both the corporate participants and the state coalition representatives indicate the usefulness of NASSMC's efforts to engage the participation of the corporate community in state systemic reform activities. It is NASSMC's intent to submit a proposal to NASA to build on the experiences and lesson learns generated by this grant. NASSMC will propose a three-state workshop to bring together a broader representation of NASA's affiliated community with the leaders of state education reform activities to reach an understanding of key educational reform ideas such as standards and statewide systemic change, to identify key elements of systemic change in each state that need greater attention, and to identify ways for NASA and its affiliates to better use their resources to impact statewide systemic change.

ATTACHMENT

Results of State-Level Meetings "Strengthening The Links To Systemic Reform"

VIRGINIA

The NASA-IEI interactions with the Virginia Math and Science Coalition established potentially vital relationships for our coalition. While we had ample small business representation on our Board, our interaction with large corporations had been minimal. We never had been able to manage to secure the right contact with these large corporations who have major operations within Virginia. The efforts of NASSMC in arranging the meeting were invaluable to our efforts in this direction. Bill Burnette of Johnson Controls has attended a meeting of our Board and will probably be elected as a Board member. Others, including Jack Woods of IBM, have expressed great interest in our "Solve-It" project. Also, a current, but inactive, Board member from a NASA subcontractor has reassumed an active role on the Board. We expect to have other NASA subcontractor representatives added to our Board in the near future.

Thanks again for the NASSMC role in this endeavor. This is just the kind of assistance that is needed at the national level to enhance the vitality of state wide coalitions.

Dr. Reuben Farley
Executive Director, Virginia Math and Science Coalition

MARYLAND

As a result of the Maryland meeting, the Mathematics and Science Coalition formed a partnership with the Maryland Space Grant Consortium and NIEI corporations. The first activity of this collaborative was a statewide conference for educators, K- higher education; the business community; policy makers; and the general public that focused on the State of Maryland's recently adopted standards for high school graduation. The conference provided a broad-based community of leaders with an opportunity to exchange ideas and information concerning the adoption of the new statewide core learning goals in science, mathematics, and workplace skills. The purpose of the conference was supported by Gov. Parris N. Glendening in a letter to the conference participants stressing the link between a quality education for Maryland's children and the future of Maryland's economy.

Following on the recommendations from the conference participants, three regional conferences are being planned that will expand to include all educational stakeholders and focus on additional topics of concern and interest in the MSTE reform efforts of the state.

Dr. Joan Aron
Executive Director, Maryland Mathematics and Science Coalition